Range Flight Safety Systems (FSS)

Development of the second of three Phase II courses, the Range Flight Safety Systems course, began in 2004. The course will be offered once at KSC in 2006. This four-day course focuses on flight termination system (FTS) design and operation. The course contains the seven modules briefly described below.

- **FSS Overview.** Introduction, lessons learned a brief history, FSS familiarization, and FSS component familiarization.
- **Documents/Roles and Responsibilities.** FSS requirements documentation and responsibilities and authorities.
- **Design.** Design philosophy, top level design requirements, tailoring, and class exercises.
- **Analysis.** Reliability, single point failure, and class exercises.
- **Testing.** Testing philosophy, testing timelines, and class exercises.
- **Non Expendable Launch Vehicles (ELVs).** Uninhabitable Aerial Vehicles (UAVs), Tactical Missiles, Airborne targets, and Balloons. Discussion will include basic differences of FTSs and examples.
- **Other Considerations.** Enhanced Flight Termination System to include shortfalls of standard, current FTSs; basic concept, components, and operation of the enhanced flight termination system. Autonomous Flight Safety System to include basic concept, components, and operation of the autonomous flight safety system. Government Furnished Equipment FTS description and potential benefits.

Range Flight Safety Operations

The Range Flight Safety Operations course, the last of three Phase II advanced courses, will be developed in 2006 and offered for the first time in 2007. The course will be managed by the NASA Safety Training Center and taught by several range safety operations professionals from NASA and other federal agencies involved in range safety. Unlike previous courses, this course will be taught at Wallops Flight Facility to take advantage of facility's range safety and control room facilities as well as the mobile range safety system assets.

To ensure mission success and the safety of operations for the range, a formal process has evolved among the different ranges to provide range safety operations. This course will address the roles and responsibilities of the Range Safety Officer for range safety operations as well as real time support, including pre-launch, launch, flight, entry, landing, and any required mitigation.

Mission rules, countdown activities, and display techniques will be presented. Additionally, tracking and telemetry, along with vehicle characteristics and sortie/range generation and checkout, will be covered in detail. Finally, post operations, lessons learned, and the use and importance of contingency plans

will be discussed. Those participating in the course receive hands-on training and exercises to reinforce the instruction.

The course design document was completed in 2005. The initial design centers on the topics shown in the graphic below.